

Date: Monday, 6/12/2006 3:21:41 PM  
 User: Kim Johnston

## Process Sheet

Customer : CU-DAR001 Dart Helicopters Services Drawing Name : SKID TUBE ASSEMBLY  
 Job Number : 27481A  
 Estimate Number : 10023  
 P.O. Number : N/A Part Number : D205634041  
 This Issue : 6/12/2006 S.O. No. : N/A Drawing Number : D2580 REV C  
 Prsht Rev. : NC Project Number : N/A  
 First Issue : N/A Type : LANDING GEAR Drawing Revision : C  
 Previous Run : 27480A Material : N/A  
 Written By : *See Comment Below* Due Date : 7/5/2006 Qty: 1 Um: Each  
 Checked & Approved By : *OK 06-06-22*  
 Comment : Est Rev: N 02/08.28 FP was QC5 in Step 27; Added QC5 to Step 30 KJ  
 Est Rev. O 06.02.28 Added paperwork EC

## Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
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1.0	D25001190	Ext'n -I' Beam Tube 4"
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Comment: Qty.: 1.0400 Each(s)/Unit Total : 1.0400 Each(s)

Pick:

Qty	Part Number	Description	Batch
1	D2500-1-190	Skid Tube Extrusion	B24669 Pmc 06-06-22 ①

2.0	DC	DOCUMENT CONTROL
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Comment: DOCUMENT CONTROL

Photocopy D205-634 bluefile & type labels per PPP D205-634 CHG001

KS 06-06-26 ①

3.0	D2596	205 Web
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Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
1	D2596	205 Web	B27655 Pmc 06-06-22 ①

4.0	LANDING GEAR 1	LANDING GEAR RESOURCE 1
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Comment: LANDING GEAR RESOURCE 1

1- Inspect mat'l D2500-1-190 for damage Pmc 06-06-22 ①

2-Cut D2500-1-190 per Dwg D2580 if necessary Deburr ends Pmc 06-06-22 ①

3-Drill pilot holes using drill jig DT 8149 Pmc 06-06-22 ①

4-Acid etch and Alodine tube per QSI 005 4.1 Pmc 06-06-23 ①

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE		By	Date	Qty	Approval Mfg / Design Mgr	Approval QC Inspector

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action			Verification Section C	Approval Design Mgr	Approval QC Inspector
			Initial Design Mgr	Action Description Design Mgr	Sign & Date			

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

NOTE: Date & initial all entries

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Job Number:



Seq. #:

Machine Or Operation:

Description :

5-Open holes to 0.500" as per Dwg D2580 without cutting fluid

*Pm' 06-06-270*

6-Countersink holes as per Dwg D2580 without cutting fluid

*Pm' 06-06-270*

7-Deburr and blow out all chips from inside of tube

*Pm' 06-06-270*

8-Bond web in place per QSI 015. Allow 12 Hrs. cure time before cutting

Pick:

Qty	Part Number	Description	Batch
A/R	Sikaflex-291	<i>m101126</i>	
Sikaflex expire date: <i>06-11-01</i>			
Start Time: <i>3:00</i>			
Fin Time: <i>06-06-28</i>			

*Pm' 06-06-270*

5.0

BENDING

BENDING MACHINE



Comment: BENDING MACHINE

1-Bend as per program D2580.C on CNC Bender and Folio FT009

2-Cut tubes as per Dwg. D2580

*DP 06-06-28*

6.0

LANDING GEAR 1

LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Deburr ends after cutting. Remove alodine from around holes

*BE 06-06-29*

7.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

*06-06-30 (1)*

8.0

D25763

Step (Machining Detail)



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
1	D2576-3	Step	<i>223060</i>

*BE 06-07-04*

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Job Number:



Seq. #:

Machine Or Operation:

Description:

9.0

D2579

Crossbolt Spacer



Comment: Qty.: 20.0000 Each(s)/Unit Total: 20.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
20	D2579	Spacers	B 25977 BE 06-07-04

10.0

LARGE FAB 1

LARGE FABRICATION RESOURCE 1



Comment: LARGE FABRICATION RESOURCE 1

1-Prepare tube for welding D2576-3 StepRemove alodine as required.

BE 06-07-04

2-Weld step D2576 as per Dwg. D2580 and QSI 004

A/R

Aluminum Rod

M 100660

BE 06-07-04

3-Weld crossbolt spacers D2579 as per Dwg. D2580 and QSI 004. For D2579

spacers, weld one

side, pass 3/8" drill, weld other side, pass 3/8" drill

A/R

Aluminum Rod

M 100660

BE 06-07-04

4-Grind welds as per Dwg D2580 Grind flush ridge made from bending

5-Drill holes for wearplates using DT 8217Open holes to 19/64", adjust stopper not to hit web. Debur

6-Counterbore crossbolt spacers to 7/16" ID x 1.0" deep as per Dwg D2580. Debur holes

7-Drill pilot holes for aft cap using DT 8215Open holes to #6 Drill bit. Debur

8-Drill pilot holes for Tow ring using DT8091, open to .640"and Debur

DD  
6-7-12

11.0

QC5/9

WELD INSPECTION



Comment: WELD INSPECTION

Inspect weld and Counterbore work to Step 20

AD 06-07-14 (1)

12.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Powder Coat White (Ref: 4.3.5.2) as per QSI 005 4.3

a.m

06-07-19

(1)

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE		By	Date	Qty	Approval Mfg / Design Mgr	Approval QC Inspector

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Job Number:



Seq. #:

Machine Or Operation:

Description :

13.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

DL 06/07/22 (1)

14.0

D25771

Wearplate Fwd



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
1	D2577-1	Wearplate	B25137

15.0

D25773

Wearplate Aft



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
1	D2577-3	Wearplate	B26058

16.0

D25775

Wearplate, Centre



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
1	D2577-5	Wearplate	B24199

17.0

ALS71032130

Insert



Comment: Qty.: 44.0000 Each(s)/Unit Total : 44.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
44	ALS7-1032-130	Washer inserts	M19593

18.0

AN960JD10L

Washer



Comment: Qty.: 44.0000 Each(s)/Unit Total : 44.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
44	AN960JD10L	inserts washers	M101291

DL 06/07/22 (1)

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			Initial Design Mgr	Action Description Design Mgr	Sign & Date				

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_

NOTE: Date & initial all entries

NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_



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Job Number: 27481A

Part Number: D205634041

Job Number:



Seq. #:

Machine Or Operation:

Description :

19.0

AN34A

Bolt



Comment: Qty.: 44.0000 Each(s)/Unit Total : 44.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
44	AN3-4A	Bolt	M18310

20.0

D25941

Plug



Comment: Qty.: 16.0000 Each(s)/Unit Total : 16.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
16	D2594-1	<del>O-RING</del> plug	B25593

21.0

D25943

O-Ring



Comment: Qty.: 16.0000 Each(s)/Unit Total : 16.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
16	D2594-3	<del>Plug</del> O-Ring	B24104

22.0

D2855

Cap



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Cap

Batch: B23925A

23.0

AN35A

Bolt



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Bolt

Batch: M15205

24.0

AN960JD10L

Washer



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Washer

Batch: M101291

DL 06/07/22 (1)

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE		By	Date	Qty	Approval Mfg / Design Mgr	Approval QC Inspector

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action			Verification Section C	Approval Design Mgr	Approval QC Inspector
			Initial Design Mgr	Action Description Design Mgr	Sign & Date			

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_

NOTE: Date & initial all entries

NCR: Yes ☒ No ☐ DQA:  Date: 06/08/01

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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Job Number: 27481A

Part Number: D205634041

Job Number:



Seq. #:

Machine Or Operation:

Description :

25.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

1-Install inserts & wearplates as per Dwg. D2580. Use a drop of Sikaflex on insert holes before installing wearplates

A/R Sikaflex-291 M101193

Sikaflex expire date: 11/09

2-Coat D2594-3 O' rings with Petroleum Jelly and install on D2594-1 plugs as per Dwg D2580

3-Inspect for foreign object per QSI 024

4-Install 2855 Aft Cap as per Dwg D2580 and seal Fwd Step & Aft Cap with Sikaflex. Clean excess adhesive

A/R Sikaflex-291 M101193

Sikaflex expire date: 11/09

5-Wing Walk as per Dwg D2580 and QSI 005 4.4

M101667

Batch:

FC 06 07 24 ①

26.0

QC5

INSPECT WORK TO CURRENT STEP



M 06 07 25



①

Comment: Inspect Aft Cap, Fwd Step and Wing Walk of work to Current Step Inspect for Foreign objects per QSI 024

27.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and pack for shipping as per PPP D205634-041

Location: \_\_\_\_\_

PPP Rev: \_\_\_\_\_

MS

28.0

DC

DOCUMENT CONTROL



Comment: DOCUMENT CONTROL

Inspection Level 21

06/08/01 ①

Job Completion



C206108101

W/O:		WORK ORDER CHANGES						
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NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Design Mgr	Approval QC Inspector
			Initial Design Mgr	Action Description Design Mgr	Sign & Date			

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

NOTE: Date & initial all entries

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_



DESIGN <i>[Signature]</i>	DRAWN BY <i>[Signature]</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>[Signature]</i>	APPROVED <i>[Signature]</i>	DRAWING NO. D2580	REV. C SHEET 1 OF 2
DATE 98.08.26		TITLE 205 SKIDTUBE ASSEMBLY	SCALE NTS
A	96.09.16	NEW ISSUE	
B	96.12.02	AS MANUFACTURED	
C	98.08.26	REDRAWN, INCLUDED DEO 9094/9097	

RELEASED  
98/09/17 DS

QTY	Part Number	Description
X	D2580-041	SKIDTUBE ASSEMBLY
*	D2500-1	EXTRUSION
1	D2596	205 WEB
1	D2575	AFT CAP
1	D2576 - 3	STEP
20	D2579	CROSS BOLT SPACER
16	D2594-1	PLUG
16	D2594-3	O-RING
1	D2577-1	WEARSHOE
1	D2577-3	WEARSHOE
1	D2577-5	WEARSHOE
44	ALS7-1032-130 or AKS7-1032-130 or AKS4-1032-130 or ALS4-1032-130	INSERT
46	AN3-4A	BOLT
46	AN960JD10L	WASHER

# 00.08.28  
UP 00.08.28

EFFECTIVE DEOS  
98/12/14  
DEO 9124  
DED 9183

#### GENERAL NOTES:

- 1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 2) LENGTH OF D2500-1 EXTRUSION BEFORE BENDING = 190 INCHES \*
- 3) INSERT D2596 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241 ADHESIVE PER DART QSI 015 BEFORE BENDING. ENSURE HOLES LINE-UP.
- 4) BEND AS A SMOOTH RADIUS STARTING WITH A MAXIMUM CENTERLINE RADIUS OF 60 AND ENDING WITH A MINIMUM RADIUS OF 30. A MAXIMUM REDUCTION OF 0.200 IN DIAMETER IS ALLOWABLE IN THE BENT PORTION OF THE TUBE.
- 5) USE DART DRILL TEMPLATE TD2577-205 TO LOCATE AND DRILL Ø0.297 HOLES FOR WEARSHOE INSERTS. INSTALL ALS7-1032-130 PER SECTION D-D (44 PLACES) AFTER FINISH. INSTALL AN3-4A BOLTS AND AN960JD10L WASHERS WITH SIKAFLEX-241.
- 6) WELDING TO BE DONE PER DART QSI 004.
- 7) FINISH:  
ACID ETCH, ALODINE PER DART QSI 005 4.1 PRIOR TO INSERTING D2596 WEB  
POWDER COAT ASSEMBLY GLOSS WHITE (REF 4.3.5.1) PER DART QSI 005 4.3  
BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4
- 8) INSERT D2594-1 PLUG C/W D2594-3 O-RING IN HOLES MARKED 'P' (BOTH SIDES OF TUBE) AFTER FINISH (16 PLACES).

Diagram illustrating the installation of a bolt (AN3-4A) and washer (AN960/D10L) into a circular component. The diagram shows a cross-section of the component with a central hole. A bolt is shown passing through the hole, secured by a washer and a cap (D2575). The bolt is labeled "AN3-4A BOLT (1)" and "AN960/D10L WASHER (1) (2 PLACES)". The cap is labeled "D2575 CAP". The hole is labeled "DRILL PRIOR TO D2575 CAP INSTALLATION (2 PLACES)". The bolt is labeled "#0.208". The washer is labeled "SEAL WITH SRAKAFLEX-241". The cap is labeled "0.40".

02579 SPACER

WEB (REF)

-130 (REF)  
14 PLACES

AFTER PERFORM  
1. CHA  
2. INS  
3. WEI  
4. C'B

AFTER DRILLING AND BENDING ASSEMBLY  
PERFORM THE FOLLOWING FOR #0.508 HOLES ONLY:

1. CHAMFER HOLE 0.050 X 45°
2. INSERT D2579 SPACER (20 PLACES)
3. WELD INTO PLACE AND GRIND FLUSH
4. C'BORE D2579 SPACER TO #0.437 X 1.00 DEEP

37.50  
DISTANCE TO AFT END  
OF D2596 WEB

3 7

1.750 1.750

#0.508 (TYP.)  
(40 PLACES)

REFER TO DETAIL A

8.750 17.375 26.000 34.188


57.313 (REF)  
7 EQUAL SPACES  
8.188 PITCH

38.0 91.500 190.0  
(D2500-1)

Figure 1: Plan view of a horizontal curve. The diagram shows a road layout with a horizontal curve. Key dimensions include: a 1.4m offset at the start, a 13.4m distance between the start hole and the tangent point, a 1.0m distance between the hole and the tangent point, a 32.0m distance between the end hole and the tangent point, a 20.0m offset at the end, and a 11.5m offset at the end. A triangle with the number 4 is shown at the end of the curve. A dimension of #0.640 is also indicated.

[illegible]

RELEASED  
98/09/17 DS

DESIGN <i>DH</i>	DRAWN BY <i>CP</i>	 <b>DART AEROSPACE LTD</b> HAWKSBURY, ONTARIO, CANADA
CHECKED <i>DH</i>	APPROVED <i>JS</i>	
DATE 98.08.26	DRAWING NO. D2580	REV. C SHEET 2 OF 2
	TITLE 205 SKIDTUBE ASSEMBLY	SCALE 1:24

SHOOT COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 2748